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Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.14/KRIDL/CSR-02/777n/CEMENT/2014-15 Date: 02.03.2015

TEST REPORT ON CEMENT

*** CUSTOMER**	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
***AGENCY**	:	**Technical Manager (West),** KRIDL, Bangalore.
***NAME OF THE WORK**	:	Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	:	EE/DD/WO/261/2014-15 Dated: 28.02.2015
SAMPLE ID	:	Cement – Sample 2
SAMPLE RECEIVED ON	:	28.02.2015
PERIOD OF TESTING	:	28.02.2015 to 02.03.2015

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	28.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	160 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	425 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

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Quality Manager

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Job No.: CTCE/BBMP/W.No.14/KRIDL/CSR-02/777n/SAND-Gradation/2014-15 : 02.03.2015

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Technical Manager (West),** KRIDL, Bangalore.

*** Name of Work** : Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.

Reference : EE/DD/WO/261/2014-15 Dated: 28.02.2015

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates - Sample 2

Sample Received on : 28.02.2015

Date of Testing : 02.03.2015

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	93.30	90-100	90-100	90-100	95-100
2.36	79.10	60-95	75-100	85-100	95-100
1.18	58.20	30-70	55-90	75-100	90-100
600 Micron	38.50	15-34	35-59	60-79	80-100
300 Micron	13.90	5-20	8-30	12-40	15-50
150 Micron	2.40	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-II specific limits.

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Job No.: CTCE/BBMP/W.No.14/KRIDL/CSR-02/777n/AGG/GR/2014-15 : 02.03.2015

TEST REPORT ON COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Technical Manager (West),** KRIDL, Bangalore.

*** Name of Work** : Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.

Reference : EE/DD/WO/261/2014-15 Dated: 28.02.2015

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (40mm) - Sample 2

Sample Received on : 28.02.2015

Date of Testing : 02.03.2015

Total Wt. of Aggregates in gms= **10000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	96.81	95-100	85-100
20	39.38	30-70	0-20
10	11.90	10-35	0-5
4.75	1.52	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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T-2377

Job No.: CTCE/BBMP/W.No.14/KRIDL/CSR-02/777n/CUBE/2015-16 10.04.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
Reference	: EE/DD/WO/261/2014-15 Dated: 28.02.2015
* Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{15}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 10.04.2015

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	13.03.2015	10.04.2015	8.135	361.7	16.08
2	13.03.2015	10.04.2015	8.219	376.8	16.75
3	13.03.2015	10.04.2015	8.364	389.2	17.30

* Information is furnished by the Customer/Representative

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Job No.: CTCE/BBMP/W.No.14/KRIDL/WMM/Gradation/2014-15

13.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.

Reference : EE/DD/WO/261/2014-15 Dated: 28.02.2015

Date of Testing : 13.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7435**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	315	315	4.2	95.8	95-100
22.4	2615	2930	39.4	60.6	60-80
11.2	1425	4355	58.6	41.4	40-60
4.75	730	5085	68.4	31.6	25-40
2.36	925	6010	80.8	19.2	15-30
0.600	535	6545	88.0	12.0	8-22
0.075	475	7020	94.4	5.6	0-8

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Job No.: CTCE/BBMP/W.No.14/KRIDL/WMM/AIV/2014-15 13.03.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
Reference	EE/DD/WO/261/2014-15 Dated: 28.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	13.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	299	
4	Aggregate Impact value = percent fines	20.90	21.52	
	100* (W_2/W_1)%			**21.21**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.14/KRIDL/WMM/S-T/2014-15 13.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
Reference	EE/DD/WO/261/2014-15 Dated: 28.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	13.03.2015

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Result : Flakiness Index = **11.68%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index 24.93%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.14/KRIDL/SDBC/Bitumen/2014-15 27.03.2015

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	EE/DD/WO/261/2014-15 Dated: 28.02.2015
SAMPLE I/D	Roads in Soundarya Layout, Ward No. 14
DATE OF TESTING	27.03.2015

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BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	475
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	25.00
7. Bitumen content in %	5.20	5.00
8. Average	**5.10**	

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Job No.: CTCE/BBMP/W.No.14/KRIDL/SDBC/Gradation/2014-15 27.03.2015

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at Soundarya Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	EE/DD/WO/261/2014-15 Dated: 28.02.2015
SAMPLE I/D	Roads in Soundarya Layout, Ward No. 14
DATE OF TESTING	27.03.2015

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GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	24.36	5.14	5.14	94.86	90-100
4.75	250.89	52.93	58.07	41.93	35-51
2.36	51.34	10.83	68.90	31.10	24-39
1.18	28.96	6.11	75.01	24.99	15-30
0.3	58.37	12.31	87.32	12.68	9-19
0.075	35.16	7.42	94.74	5.26	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	31.58	6.65	6.65	93.35	90-100
4.75	255.64	53.82	60.47	39.53	35-51
2.36	42.19	8.88	69.35	30.65	24-39
1.18	43.26	9.11	78.46	21.54	15-30
0.3	31.87	6.71	85.17	14.83	9-19
0.075	40.98	8.63	93.79	6.21	3-8

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